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Please delete the previously presented "Abstract of the Disclosure", appearing after the claims, and replace with the new abstract below.

Abstract of the Disclosure

The current invention relates to fusion proteins comprising at least one functional periplasmic binding protein, at least one labeling moiety and at least one fluorescent protein. In one embodiment, the periplasmic binding protein is a functional mutant glucose-galactose binding protein (GGBP). The invention also relates to methods for quantifying an analyte for example glucose, in a cell or tissue comprising administering a composition comprising a fluorescent periplasmic binding fusion protein with at least one labeling moiety and at least one fluorescent protein attached thereto, portion to the cell or tissue, and The methods of quantifying the analyte further comprise detecting the change in a ratiometric measurement of fluorescence resonance energy transfer occurring between the labeling moiety and the fluorescent protein before and after the analyte binds to the periplasmic binding protein, measuring the fluorescence of the fluorescent periplasmic binding fusion protein.